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Subject: DEQ Comments on Lamprey QAPP
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Here are my comments on the Lamprey toxicity testing QAPP.

-Jennifer

Page ii, Distribution List: DEQ should be added to the list to receive a copy of the approved QA Project Plan.

Page 1, Section 1.0, Introduction: The QA objectives, methods, and procedures associated with the chemical analysis are presented separately, which I have not reviewed yet. I plan on sending comments on that document separately, since it was just received.

Figure 1.1, Project Organization: Is this supposed to say "EPA and Oregon DEQ Project Managers"? I am assuming "Ecology" is referring to Washington State's clean up program.

Section 1.6.4, Data Report: The data report submitted to the government team should include the all raw data electronically (e.g. water quality measurements, replicate survival, etc.) and LC50 calculations from the laboratory. In addition, the data should also be submitted electronically in SEDQUAL format.

Page 9, Section 2.1, Experimental Design: I would discourage the use of the static tests for the range finding. There is a potential to significantly underestimate the sensitivity of lamprey because the test substance may degrade or be absorbed. The greater the similarity between the range finding and the definitive tests, the more useful the range finding tests will be. However, if the static range finding tests are to be performed, a range finding test in the flow through system should be conducted prior to the definitive tests.

Test Waters: Test waters should be measured for ammonia, particulate matter, total dissolved gas, and TOC according to ASTM, 1996.

Organism Loading: The protocol outlined here should follow the ASTM guidelines. For static tests, organisms per chamber should not exceed 0.8 g/organism per liter for temperatures 17 degrees C or less.

Feeding: For the static tests, the organisms should not be fed unless it is shown to stress the organisms within the test period (96 hours). Fecal matter and uneaten food will decrease the dissolved oxygen concentration and the biological activity of some test materials. This is especially a problem in the static tests.

Control Test Run: A control test should be run in the test water and environment prior to conducting testing. During this control run, stress, mortality or other organism behavior that may influence the results of the test should be recorded. This testing can also be used to determine if feeding during the test is necessary.

Page 9, Section 2.1, Holding: A daily record of feeding, behavioral observations and any mortality should be recorded and provided to the government team.

Page 11, Table 2-2, Summary of 96-hour range finding: This is an acute test, but other endpoints in addition to mortality should be noted in addition to mortality. This is especially important in a range finding test. Other endpoints should include altered swimming behavior, narcosis symptoms, and morbidity. This is also important since this organism has not been tested with these chemicals in the laboratory previously. In addition, the number of dead and affected organisms in each test chamber should be counted every 24 hours after the beginning of the test (ASTM 1996).

Page 11, Section 2.2, Test Methods: It appears that testing methodology designed for brook and rainbow trout are being used for lamprey, including a testing temperature of 12 degrees C. Testing protocols recommend different temperatures for different organisms (e.g. fathead minnow). I would test at a temperature closest to the Willamette or the river where they were captured unless we have some information from the literature that would indicate an optimal temperature. Testing at a temperature where the ammocoetes would be the most active would give us the worst case scenario. We wouldn't want to test at a temperature where the ammocoetes would be inactive (e.g. cold water), since this could influence the uptake and metabolism of the chemical. As with the toxicity tests, I would also target the water hardness and other properties for the testing to match the Willamette.